

## REMARKS

Seven specification paragraphs have been amended to conform reference numbers to the filed drawings and to correct typographical errors. In addition, language has been amended to conform terminology to the filed claims (e.g., claims 6 and 25). No new matter has been added because the amendment conforms the specification to the filed claims.

Replacement sheets for FIGS. 1 and 3 are included.

Claims 2-6, 9, 11, 12, 17, 18, 20, 22, 24, 25 and 31 have been amended and claims 8 and 10 have been canceled. Claims 1-7, 9 and 11-32 remain in the application.

The Examiner objected to the drawings under 37 CFR 1.83(a) which requires that the drawings show all claimed features. The drawing objections comprised:

a) no connection showing the counters 43 and 44 controlled by the count processor 48 as described, for example, at page 4, lines 7-9 and page 6, lines 31-33 of the specification and claims 3 and 18 – replacement sheets of FIGS. 1 and 3 that add a connection 47 are included with this amendment – the connection 47 begins at the count processor 48 and points to the counters 43 and 44 - the paragraph that begins at page 4, line 3 has been amended to note this added reference number - no new matter has been added because the drawing alteration conforms the drawings to the filed specification and claims;

b) no harmonic detector shown – this feature has been removed with cancellation of claim 8;

c) no comparator shown – this feature has been removed with amendment of claim 9;

d) an adder of claim 9 not shown – this feature has been removed with amendment of claim 9;

e) no frequency adjuster shown – this feature has been removed with cancellation of claim 10; and

f) no second adder shown – this feature has been removed with amendment of claim 11.

Applicant therefore submits that the drawings now show all claimed features and that, accordingly, the objections under 37 CFR 1.83(a) should be removed.

The Examiner rejected claims 2-11 and 18-20 under 37 CFR §112, 2<sup>nd</sup> paragraph as being indefinite. The rejections comprised:

a) claim 2 recited a counter controlling a difference count – claim 2 has been amended to recite that a differencer (46) obtains the difference count;

b) claim 4 recited an adder in the count processor – claim 4 has been amended to recite that the adder (49) is in the frequency controller;

c) claims 5 and 18 recited a counter providing a difference count – claim 5 has been amended to remove the counter and claim 18 has been amended to recite that a differencer (46) provides the difference count;

d) claims 5 and 20 recite that the count processor multiplies the controlled tuning word by a multiplier S – claims 5 and 20 have been amended to recite that a frequency multiplier (84) multiplies the controlled tuning word by a multiplier S;

e) claim 6 recites that an adder is in the phase controller – claim 6 has been amended to recite that the adder (62) is in the signal generator; and

f) claim 11 recites a second adder not described – claim 11 has been amended to remove the second adder.

In addition, the Examiner noted that “said frequency controller” lacked an antecedent in claim 20 – claim 20 has been amended to remove the frequency controller.

Applicant therefore submits that the claims are no longer indefinite and that, accordingly, the rejections under 37 CFR §112, 2<sup>nd</sup> paragraph should be removed.

The Examiner stated that claims 2-11 would be allowable if rewritten to overcome the rejections under 37 CFR §112, 2<sup>nd</sup> paragraph and if rewritten in independent form including all base and intervening limitations. The Examiner further stated that claims 12-17 would be allowable if rewritten in independent form including all base and intervening limitations. As noted above, the rejections under 37 CFR §112, 2<sup>nd</sup> paragraph have been resolved.

Claim 2 has been rewritten in independent form to include the limitations of claim 1 from which it previously depended. Claims 3-5 remain dependent from claim 2 and claims 6, 12 and 17 have been amended to depend from claim 2. Claims 7, 9 and 11 remain dependent from claim 6.

In addition to amendments noted above, claim 3 has been amended to remove language now in amended claim 2. Claim 9 has been amended to properly recite the counter (120), multiplier (121) and multiplier (122) that are shown in FIGS. 4 and 5 and described, for example, in the two paragraphs that begin at page 7, line 35 of the specification. Claim 11 has been amended to properly recite the latch (110), differencer (112) and multiplier (114) that are shown in FIGS. 4

and 5 and described, for example, in the two paragraphs that begin at page 7, line 19 of the specification.

Applicant therefore submits that claims 2-12 and 17 are now in condition for allowance.

The Examiner stated that claims 18-20 would be allowable if amended to overcome the rejections under 37 CFR §112, 2<sup>nd</sup> paragraph. As noted above, claims 18 and 20 have been so amended. Applicant therefore submits that claims 18-20 are now in condition for allowance.

The Examiner stated that claims 22-24 and 26-32 would be allowable if rewritten in independent form including all base and intervening limitations. In addition, claim 25 is now in condition for allowance as noted above.

Claim 22 has been rewritten in independent form to include the limitations of claim 21 from which it previously depended. A typographical correction has been made in claim 22. Claim 23 remains dependent from claim 22 and claims 24, 25 and 31 have been amended to depend from claim 22 (a typographical error has also been corrected in claim 31). Claims 26-28 remain dependent from claim 25 with claim 29 remaining dependent from claim 28.

Accordingly, claims 22-30 and 32 are now in condition for allowance.

The Examiner rejected claims 1, 21 and 25 under 35 USC §102(b) as being anticipated by Riley, Jr. (hereinafter Riley).

Independent claim 1 and its dependent claims 13-16 recite a signal generator that includes a synthesizer (30) that generates a synthesizer signal in response to a tuning word and a clock signal. The dependent claims recite that the synthesizer may comprise an adder (34) and a latch (32), and may further include a word converter (92) and a digital-to-analog converter (90) that converts the synthesizer signal to an analog signal (see page 6, lines 17-28). The phase wheel 36 of FIG. 1 visually describes how the synthesizer generates the synthesizer signal.

In contrast to the elements of Applicant's claims 1 and 13-16, **Riley** shows a VCO 12 in his FIGS. 1 and 4 and states "A voltage controlled oscillator (VCO) 12 provides an output signal having a frequency which is a function of the voltage level of an input signal fed to the oscillator" (column 3, lines 28-32). For example, "this analog voltage value is supplied along an output line 34 to the ---- voltage controlled oscillator" (column 5, lines 7-9). Riley's VCO 12 thus responds to an analog voltage and not to a tuning word and a clock signal. Since VCOs directly generate an analog signal, there is no need for the digital-to-analog converter

(recited in claim 16) that converts Applicant's synthesizer signal to an analog signal.

In contrast to voltage controlled oscillators, Applicant has provided "signal generators --- which replace components of conventional phase-locked loops (e.g., filters and voltage-controlled oscillators) with elements (e.g., direct digital synthesizers) that are simpler and less expensive to realize with integrated circuit fabrication techniques that are often encountered in modern systems (e.g., systems realized primarily with digital gates)" (at page 8, line 35).

It is therefore apparent that Riley fails to teach the signal-generating elements provided by the Applicant and recited in Applicant's claims 1 and 13-16. Accordingly, Riley cannot anticipate these claims no can he support a *prima facie* case of obviousness with respect to these claims. Applicant thus submits that claims 1 and 13-16 patentably distinguish over the cited art and asks that they be allowed.

Method independent claim 21 and dependent claims 30 and 32 recite method processes (e.g., "generating a synthesizer signal that corresponds to a tuning word and a clock signal") that correspond to the synthesizer elements of claims 1 and 13-16.

It is also apparent, therefore, that Riley fails to teach the signal-generating processes provided by the Applicant and recited in Applicant's claims 21, 30 and 32. Accordingly, Riley cannot anticipate these claims no can he support a *prima facie* of obviousness with respect to these claims. Applicant thus submits that claims 21, 30 and 32 patentably distinguish over the cited art and asks that they be allowed.

Applicant therefore request reconsideration and withdrawal of the rejections and objections and an early allowance of claims 1-7, 9 and 11-32.

Respectfully submitted,

Ken Gentile

By

Joseph Compton

Registration No. 34,308

KOPPEL, JACOBS, PATRICK & HEYBL  
555 St. Charles Drive, Suite 107  
Thousand Oaks, CA 91360  
(818) 788-6983